

ABSTRACT

Optimum bond parameters for a bond force F_B and an ultrasonic variable P_B and, optionally, at least one further bond parameter G_B of a Wire Bonder for ball bonding can be determined by means of a method with which a predetermined number of bond cycles is carried out, whereby the bond parameters to be optimised are each varied within a predefined range, whereby with each bond cycle n , after attachment of the wire ball to the connection point of the semiconductor chip, the following steps are carried out:

- a) Application of a predetermined bond force F_{B1} ,
- b) Movement of the capillary out of the bond position in a predetermined horizontal direction whereby the current $I_{B,n}$ flowing through the drive which moves the capillary is monitored,
- c) Stopping the movement of the capillary as soon as the current $I_{B,n}$ reduces,
- d) Determining the maximum of the current $I_{B,n,max}(F_{B,n}, P_{B,n}, G_{B,n})$ from the progression of the current $I_{B,n}(t)$ established during steps b) and c)
- e) Movement of the capillary to the bond position,
- f) Attachment of the wire ball to the connection point of the semiconductor chip,

and whereby, from the values $I_{B,n,max}(F_{B,n}, P_{B,n}, G_{B,n})$ established with the n bond cycles, those values for the bond force F_B , the ultrasonic variable P_B and the, if necessary, at least one further bond parameter G_B are determined as optimum bond parameters for which the current $I_{B,n,max}(F_{B,n}, P_{B,n}, G_{B,n})$ reaches a maximum.